

**What is Claimed:**

1. A stereoscopic image display apparatus for generating a stereoscopic image based on a file, comprising:

a means for determining a description indicating a stereoscopic viewing-use process out of descriptions in a file;

a means for determining a phase deviation amount and a deviation direction of an object to be stereoscopically displayed based on the description indicating the stereoscopic viewing-use process; and

a means for carrying out a rendering process of each viewpoint image of the object to be stereoscopically displayed based on the phase deviation amount and the deviation direction.

2. A stereoscopic image display apparatus according to claim 1, wherein the object to be stereoscopically displayed is rendered over an object adjacent thereto, or the object adjacent thereto is rendered over the object to be stereoscopically displayed corresponding to the phase deviation amount and the deviation direction.

3. A stereoscopic image display apparatus according to claim 2, wherein the object to be stereoscopically displayed, which is to be rendered over, is rendered in such a manner as to be translucent.

4. A stereoscopic image display apparatus according to claim 2 or 3, wherein the rendering-over process is executed when there is in the file a description indicating that the rendering-over

process is to be carried out.

5. A stereoscopic image display apparatus according to claim 1, wherein regarding each viewpoint image of the object to be stereoscopically displayed, an object on an adjacent side of the object to be stereoscopically displayed is rendered in such a manner that a location thereof is deviated toward a side of the deviation direction of the object to be stereoscopically displayed only by an amount equal to or larger than the phase deviation amount.

6. A stereoscopic image display apparatus according to claim 5, wherein a rendering process in which the location of the object on the adjacent side is deviated is executed when there is in the file a description indicating that the rendering process in which the location of the object on the adjacent side is deviated is to be carried out.

7. A stereoscopic image display apparatus according to any one of claims 1 to 6, wherein in a case that extent information as information indicating the phase deviation amount is described in the file, the phase deviation amount is calculated based on information of a previously retained setting table and the extent information.

8. A stereoscopic image display apparatus according to any one of claims 1 to 7, wherein in a case that the object to be stereoscopically displayed is stereoscopically displayed on a near side, the object to be stereoscopically displayed is expanded and

rendered, and in a case that the object to be stereoscopically displayed is stereoscopically displayed on a far side, the object to be stereoscopically displayed is reduced in size and rendered.

9. A program, enabling a computer to function as:

a means for determining a description indicating a stereoscopic viewing-use process out of descriptions in a file;

a means for determining a phase deviation amount and a deviation direction of an object to be stereoscopically displayed based on the description indicating the stereoscopic viewing-use process; and

a means for carrying out a rendering process of each viewpoint image of the object to be stereoscopically displayed based on the phase deviation amount and the deviation direction.

10. A program according to claim 1, enabling a computer to function as a means for rendering the object to be stereoscopically displayed over an object adjacent thereto, or rendering the object adjacent thereto over the object to be stereoscopically displayed corresponding to the phase deviation amount and the deviation direction.

11. A program according to claim 10, enabling a computer to function as a means for rendering the object to be stereoscopically displayed, which is to be rendered over, in such a manner as to be translucent.

12. A program according to claim 10 or 11, enabling a computer to function as a means for executing the rendering-over

process when there is a description indicating the rendering-over process in a file.

13. A program according to claim 9, enabling a computer to function as a means for rendering an object on an adjacent side of the object to be stereoscopically displayed in such a manner that a location thereof is deviated toward a side of the deviating direction of the object to be stereoscopically displayed only by an amount equal to or larger than the phase deviation amount, regarding each viewpoint image of the object to be stereoscopically displayed.

14. A program according to claim 13, enabling a computer to function as a means for executing a rendering process in which the location of the object on the adjacent side is deviated when there is in a file a description indicating that the rendering process in which the location of the object on the adjacent side is deviated is carried out.

15. A program according to any one of claims 9 to 14, enabling a computer to function as a means for calculating, in a case that extent information as information indicating the phase deviation amount is described in the file, the phase deviation amount based on information of a previously retained setting table and the extent information.

16. A program according to any one of claims 9 to 15, enabling a computer to function as a means for expanding and rendering the object to be stereoscopically displayed in a case that the object to be stereoscopically displayed is stereoscopically

displayed on a near side, and reducing in size and rendering the object to be stereoscopically displayed in a case that the object to be stereoscopically displayed is stereoscopically displayed on a far side.

17. A stereoscopic image display apparatus for generating a stereoscopic image based on a file, comprising:

a means for determining whether or not there is attribute information indicating a stereoscopic viewing-use process regarding each character in the file;

a means for determining a phase deviation amount and a deviation direction of a character to be stereoscopically displayed based on the attribute information; and

a means for carrying out a rendering process of each viewpoint image of the character to be stereoscopically displayed based on the phase deviation amount and the deviation direction.

18. A stereoscopic image display apparatus according to claim 17, wherein an image of a shade of the character to be stereoscopically displayed is rendered.

19. A stereoscopic image display apparatus according to claim 18, wherein when the character to be stereoscopically displayed is viewed on a nearer side, a shade is rendered in such a manner that a location thereof is more greatly deviated.

20. A stereoscopic image display apparatus according to claim 18 or 19, wherein the shade is rendered by the same color system of the character to be stereoscopically displayed, and by

saturation and/or intensity different therefrom.

21. A stereoscopic image display apparatus according to any one of claims 17 to 20, wherein when the character to be stereoscopically displayed is viewed on a nearer side, the character to be stereoscopically displayed is rendered larger.

22. A stereoscopic image display apparatus according to any one of claims 17 to 21, wherein when the character to be stereoscopically displayed is viewed on a nearer side, the character to be stereoscopically displayed is rendered so that intensity of the color of the character to be stereoscopically displayed is more enhanced.

23. A stereoscopic image display apparatus according to any one of claims 17 to 22, wherein in a case that the character to be stereoscopically displayed is a character with a strike-through, each viewpoint image of the strike-through is rendered so that the strike-through is viewed on a nearer side than the character to be stereoscopically displayed.

24. A stereoscopic image display apparatus according to claim 23, wherein the strike-through of the character to be stereoscopically displayed is rendered by any one of a shaded line, a depth line, a waveform line, or a dashed line.

25. A program, enabling a computer to function as:

a means for determining whether or not there is attribute information indicating a stereoscopic viewing-use process regarding each character in a file;

a means for determining a phase deviation amount and a deviation direction of a character to be stereoscopically displayed based on the attribute information; and

a means for carrying out a rendering process of each viewpoint image of the character to be stereoscopically displayed based on the phase deviation amount and the deviation direction.

26. A program according to claim 25, enabling a computer to function as a means for rendering an image of a shade of the character to be stereoscopically displayed.

27. A program according to claim 26, enabling a computer to function as a means for rendering a shade in such a manner that a location thereof is greatly deviated, when the character to be stereoscopically displayed is viewed on a nearer side.

28. A program according to claim 26 or 27, enabling a computer to function as a means for rendering the shade by the same color system of the character to be stereoscopically displayed, and by saturation and/or intensity different therefrom.

29. A program according to any one of claims 25 to 28, enabling a computer to function as a means for rendering the character to be stereoscopically displayed larger, when the character to be stereoscopically displayed is viewed on a nearer side.

30. A program according to any one of claims 25 to 29, enabling a computer to function as a means for rendering the character to be stereoscopically displayed so that intensity of the



color of the character to be stereoscopically displayed is more enhanced, when the character to be stereoscopically displayed is viewed on a nearer side, .

31. A program according to any one of claims 25 to 30, enabling a computer to function as a means for rendering, in a case that the character to be stereoscopically displayed is a character with a strike-through, each viewpoint image of the strike-through so that the strike-through is viewed on a nearer side than the character to be stereoscopically displayed.

32. A program according to claim 31, enabling a computer to function as a means for rendering the strike-through of the character to be stereoscopically displayed by any one of a shaded line, a depth line, a waveform line, or a dashed line.

33. A text data processing apparatus, comprising:

a conversion rule storing means for storing a conversion rule for converting attribute information on a character or a string of characters into another attribute information;

an attribute searching means for searching from text data the character or the string of characters having the attribute information corresponding to the conversion rule; and

an attribute conversion means for converting according to the conversion rule the attribute information on the character or the string of characters searched by the attribute searching means, wherein the conversion rule includes a rule for converting attribute information for producing a three-dimensional stereoscopic display



effect on the character or the string of characters into attribute information for producing a certain decoration of a two-dimensional character effect.

34. A text data processing apparatus according to claim 33, wherein the conversion rule includes a rule for converting the attribute information for producing the three-dimensional stereoscopic display effect into attribute information for producing a two-dimensional character decoration effect approximate to a stereoscopic display such as an italic character, a shaded character, etc.

35. A text data processing apparatus according to claim 33 or 34, wherein the conversion rule includes a rule for changing a font size of two-dimensional character corresponding to a level of the three-dimensional stereoscopic display effect.

36. A text data processing apparatus, comprising:

a conversion rule storing means for storing a conversion rule for converting attribute information on a character or a string of characters into another attribute information;

an attribute searching means for searching from text data the character or the string of characters having the attribute information corresponding to the conversion rule; and

an attribute conversion means for converting according to the conversion rule the attribute information on the character or the string of characters searched by the attribute searching means, wherein the conversion rule includes a rule for converting attribute

information for producing a certain decoration of a two-dimensional character effect on the character or the string of characters into attribute information for producing a three-dimensional stereoscopic display effect.

37. A text data processing apparatus according to claim 36, wherein the conversion rule includes a rule for converting attribute information for producing a two-dimensional character decoration effect approximate to a stereoscopic display such as an italic character, a shaded character, etc., into attribute information for producing a three-dimensional stereoscopic display effect.

38. A text data processing apparatus according to claim 36 or 37, wherein the conversion rule includes a rule for changing a level of the three-dimensional stereoscopic display effect corresponding to a font size of two-dimensional character.

39. A program for providing a computer with a text data conversion function, comprising:

- a conversion rule table for converting attribute information on a character or a string of characters into another attribute information;

- an attribute searching process for searching from text data the character or the string of characters having the attribute information corresponding to the conversion rule;

- an attribute conversion process for converting according to the conversion rule the attribute information on the character or the string of characters searched by the attribute searching process,

wherein the conversion rule table includes a rule for converting attribute information for producing a three-dimensional stereoscopic display effect on the character or the string of characters into attribute information for producing a certain decoration of a two-dimensional character effect.

40. A program according to claim 39, wherein the conversion rule table includes a rule for converting the attribute information for producing the three-dimensional stereoscopic display effect into attribute information for producing a two-dimensional character decoration effect approximate to a stereoscopic display such as an italic character, a shaded character, etc.

41. A program according to claim 39 or 40, wherein the conversion rule table includes a rule for changing a font size of two-dimensional character corresponding to a level of the three-dimensional stereoscopic display effect.

42. A program for providing a computer with a text data conversion function, comprising:

a conversion rule table for converting attribute information on the character or the string of characters into another attribute information;

an attribute searching process for searching from text data the character or the string of characters having the attribute information corresponding to the conversion rule; and

an attribute conversion means for converting according to the conversion rule the attribute information on the character or

the string of characters searched by the attribute searching process, wherein the conversion rule table includes a rule for converting attribute information for producing a certain decoration of a two-dimensional character effect on the character or the string of characters into attribute information for producing a three-dimensional stereoscopic display effect.

43. A program according to claim 42, wherein the conversion rule table includes a rule for converting attribute information for producing a two-dimensional character decoration effect approximate to a stereoscopic display such as an italic character, a shaded character, etc., into attribute information for producing a three-dimensional stereoscopic display effect.

44. A program according to claim 42 or 43, wherein the conversion rule table includes a rule for changing a level of the three-dimensional stereoscopic display effect corresponding to a font size of two-dimensional character.

45. A storing medium for storing a program according to any one of claims 39 to 44.